SCIENTIFIC NOTE

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Arboreal habitat use by *Adelphobates galactonotus* (Anura: Dendrobatidae): a poison frog endemic of the Brazilian Amazon

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ABSTRACT

Adelphobates galactonotus is a poison frog endemic of the Brazilian Amazon. It can be found in areas recently cleared and burnt areas, near fallen trees, in sun-exposed clearings, and forest edges, but always on the ground or on fallen tree trunks. Although Dendrobatids are well known for arboreal behavior, especially in captivity, to date, for *A. galactonotus* there has been no mention, in the scientific literature, of the use of arboreal habitat or of his ability to climb trees. Here, I present the first record, in nature, of arboreal habitat use by *Adelphobates galactonotus*.

Keywords: Behavior; Dendrobatids; History natural; Microhabitat; eastern Amazon.

Uso de habitat arbóreo por *Adelphobates galactonotus* (Anura: Dendrobatidae): uma rã venenosa endêmica da Amazônia brasileira

RESUMO

Adelphobates galactonotus é um sapo venenoso endêmico da Amazônia brasileira. Pode ser encontrado em áreas recentemente derrubadas e queimadas, perto de árvores caídas, em clareiras expostas ao sol e nas bordas da floresta, mas sempre no chão ou em troncos de árvores caídos. Embora os Dendrobatídeos sejam bem conhecidos pelo comportamento arbóreo, especialmente em cativeiro, até o momento, para *A. galactonotus*, não há menção, na literatura científica, do uso do arbitat arbóreo ou de sua capacidade de escalar árvores. Aqui, eu apresento o primeiro registro, na natureza, do uso de habitat arbóreo por *Adelphobates galactonotus*.

Palavras-chaves: Comportamento, Dendrobatídeos, História natural, Microhabitat, Amazônia oriental.

Adelphobates galactonotus (Steindachner, 1864) is an endemic Brazilian frog, found throughout Pará, Maranhão, Mato Grosso and Tocantins states (HOOGMOED; AVILA-PIRES, 2012), related to Amazon forest formations and also in transitional areas between the Cerrado and the Amazon forest (VALDUJO et al., 2012). *A. galactonotus* is a vividly colored large poison frog up to 42 mm in snout-vent length, presents a large color polymorphism of the dorsum of various populations ranges from yellow (Figure 1) via orange to red, from white to light blue, with varying amounts of black on the dorsum to even completely black, and to black with blue to greenish dots (HOOGMOED; AVILA-PIRES, 2012). The variation in the dorsal coloration of *A. galactonotus* is intriguing because it is non-mimetic and populations containing individuals with different color types are found in close proximity and within areas of similar environmental conditions (ROJAS et al., 2020). *A. galactonotus* lives in the leaf-litter of the tropical rainforest, and reproduction takes place in temporary pools. Eggs are laid on the ground and the tadpoles are carried by males to the water (RODRIGUES et al., 2010). It can be found in areas recently cleared and burnt areas, near fallen trees, in sun-exposed clearings, and forest edges (HOOGMOED; AVILA-PIRES, 2012), but always on the ground or on fallen tree trunks. During a field work, I observed for three consecutive days seven individuals (five males and two females) of *A. galactonotus* actively walking on tree trunks, and on 4 February 2015, at 09:08h, I found an adult male individual of *A. galactonotus* using the arboreal habitat, in a tree branch, about 2 m high (Figure 2), in an area of forest, in the municipality of Anapú (3°36'9"S, 50°37'22"W, WGS 84, 147 m elev.), state of Pará, northern Brazil. The habitat where the species was found is a fragment of forest, with a large amount of leaf-litter on the ground (Figure 2). Although Dendrobatids are well known for arboreal behavior (e.g., CALDWELL; OLIVEIRA, 1999), especially in captivity, to date, for *A. galactonotus*, there has been no mention, in the scientific literature, of his ability to arboreal habitat use. Here, I present the first record, in nature, of arboreal habitat use by *Adelphobates galactonotus*.

Figure 1. Specimen adult male of *Adelphobates galactonotus*, municipality of Anapú, state of Pará, northern Brazil.

Figure 2. Record of *Adelphobates galactonotus* using the arboreal habitat, in a tree branch, about 2 m high, municipality of Anapú, state of Pará, northern Brazil.

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Climbing behaviour have been recorded for some species of amphibians (e.g., NORONHA et al., 2013; CUPP Jr., 2017). Although species of the Dendrobatidae family are mainly terrestrial, some species have already been observed associated to fallen logs and branches (e.g., *Dendrobates tinctorius*; BORN et al., 2010; ROJAS; PASUKONIS, 2019). However, it is important to differentiate the use of the arboreal habitat from the ability to climb. In addition, it is possible that the use of the arboreal habitat by terrestrial species (such as *A. galactonotus*) may be limited to characteristics of the environment. Note, for example, in figure 2 the large amount of vines and branches present at the observation site. Arboreal habitat use also may be influenced by the presence of similar species, number of individuals of the same or different species in the same site, number of available sites (BENÍCIO; DA SILVA, 2017), behavioral state reproduction or optimal foraging, and seasonality (BORN et al., 2010). Anyway, the little that is known about natural history of *Adelphobates galactonotus* remains largely unpublished or from empirical data.

Anurans employ several defensive strategies to avoid or prevent predation (TOLEDO et al., 2011), and this tree-climbing behavior may be related to predator avoidance, since some tadpoles of the Dendrobatidae family are predatory and cannibalistic, and deposit the eggs on the arboreal substrate, in tiny waterfilled cavities, typically in saplings or woody vines in the forest understory can reduce this risk of predation (CALDWELL; OLIVEIRA, 1999). However, since little published information is available about any aspect of the ecology of *Adelphobates galactonotus*, still it is necessary to know whether this assumption applies to this species. Although arboreality is common in the family Dendrobatidae, and apparently usual for this species, it is remarkable that this behavior is so poorly documented within the scientific literature. This observation extends the knowledge about the species to use arboreal habitats and reinforces the need to publish data on common behavior, especially for endemic species and still little known as *Adelphobates galactonotus*.

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